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| **Course code** | CC6 |
| **Type and description** | CC - the core curriculum for the discipline Materials Engineering |
| **ECTS credit** | 1 |
| **Course name** | **Composite technologies** |
| **Course name in Polish** | **Technologie kompozytów** |
| **Language of instruction** | English |
| **Course level** | 8 PRK |
| **Course coordinator** | **Prof. dr hab. inż. Izabella Krucińska** |
| **Course instructors** | **Dr hab. inż. Eulalia Gliścińska** |
| **Delivery methods and course duration** | |  | **Lecture** | **Tutorials** | **Laboratory** | **Project** | **Seminar** | **Other** | **Total of teaching hours during semester** | | --- | --- | --- | --- | --- | --- | --- | --- | | Contact hours | 7 |  | 8 |  |  | 0 | 15 | | E-learning | No | No | No | No | No | No |  | | Assessment criteria (weightage) | 60% |  |  |  |  | 40% |  | |
| **Course objective** | The aim of the course is to enable students to acquire knowledge and skills in the field of technologies of structural composites reinforced with fibrous prepregs. |
| **Learning outcomes** | A doctoral candidate after completing the course can: 1. describe the structure of composite materials, W1, P8S\_EG; U1, P8S\_UW 2. describe the technologies of composites with various matrices, W1, P8S\_EG; U1, P8S\_UW 3. discuss and describe the impact of the raw material, the structure of the starting materials and the technology used on the properties of the composite, W1, P8S\_EG; U1, P8S\_UW |
| **Assessment methods** | effects 1-2 - written exam from the lecture effect 3 - colloquium and laboratory report  The final grade consists of: The result of the written exam - 60% Presentation – 40% |
| **Prerequisites** | Second level studies |
| **Course content with delivery methods** | LECTURE Classification of composite materials. Constructional polymers. Additives for polymers that improve their properties. Technologies of polymer composites based on thermoplastics. Technologies of polymer composites based on thermosetting plastics. Technologies of polymer composites based on chemically hardened resins. Test methods for the properties of polymer composites. Technology of metal composites. Fiber-reinforced metal composites. Composite technologies based on ceramic matrix and ceramic-metal composites. LABORATORY 1. Study of the influence of the reinforcing material contribution on the strength properties of a composite of a standard thickness. 2. Formation of composites on a polymer matrix using different forms of reinforcement and matrix  3. Evaluation of the quality of composites |
| **Basic reference materials** | 1. Śleziona J.: Podstawy technologii kompozytów. Wydawnictwo Politechniki Śląskiej, Gliwice 1998  2. Królikowski W.: Tworzywa wzmocnione i włókna wzmacniające. WNT W-wa 1988  3. Konsztowicz K.: Kompozyty wzmacniane włóknami. Podstawy technologii.  Skrypty uczelniane - Akademia Górniczo-Hutnicza im. S. Staszica w Krakowie, Kraków 1983  4. Nowacki J.: Materiały kompozytowe, Wydawnictwo Politechniki Łódzkiej, Łódź 1993  5. Wilczyński A.: Polimerowe kompozyty włókniste, W N-T, W-wa 1996  6. Przybyłowicz K., Przybyłowicz J.: Repetytorium z materiałoznawstwa, Politechnika Świętokrzyska, Kielce 1996  7. Żuchowska D.: Polimery konstrukcyjne, Wydawnictwa Naukowo-Techniczne, W-wa 2000  8. Dobrzański L.A.: Podstawy nauki o materiałach, Wydawnictwo Politechniki Śląskiej, Gliwice 2012 |
| **Other reference materials** | 1. Łaskawiec J., Michalik R.: Zagadnienia teoretyczne i aplikacyjne w implantach. Wydawnictwo Politechniki Śląskiej, Gliwice 2002 |
| **Average student workload outside classroom** | 10 h |
| **Comments** |  |
| **Last update** |  |